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The National PDES Testbed Mail Server User's Guide

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National PDES Testbed

The National PDES Testbed Mail Server User's Guide

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Sandy Ressler

Abstract

As part of the National PDES Testbed Project, the Information Services Center has established a facility to electronically distribute documents. This facility is based on software known as an "archive server" or "mail server." Electronic documents may be requested and in turn received via electronic mail (e-mail). This report is intended to function both as a user's guide and as a general explanation of the system and its capabilities.

Keywords: archive, documents, e-mail, PDES, server, STEP.

1.0 Introduction

As part of the National PDES Testbed Project[McLean90], the Information Services Center (ISC) has established a facility to distribute documents electronically. This facility is based on software known as a "mail server" or "archive server." It is assumed that the user has a computer account on a computer system with electronic mail (e-mail) capabilities.

The intent of providing a service such as the one described in this document is to create a convenient mechanism for access to up-to-date documents. This service is related to the configuration control services also provided by the ISC in that the documents accessible by the mail server are also under configuration control. This document is intended to function both as a user's guide and as a general explanation of the system and its capabilities.

Certain trade names and company products are mentioned in the text or identified in an illustration in order to adequately specify the experimental procedure and equipment used. In no case does such identification imply recommendation or endorsement by the National Institute of Standards and Technology, nor does it imply that the products are necessarily the best available for the purpose. The work described was funded by the U.S. Department of Defense Computer-aided Acquisition and Logistic Support (CALS) program of the U.S. Government and is not subject to copyright.

2.0 General Principles

A mail server is a program which "reads" e-mail sent to it and responds to the requests in that e-mail. The mail sent to the mail server must contain certain valid mail server commands or else an error will occur. When the request is to send files back to the user it does so, if the files are available. Functionally the mail server is similar to a read only bulletin board system. However it "feels" quite different because communications to and from the server are via e-mail and are not an on-line interaction. The advantage to this, however is that requests to the server can simply be made off-line at your convenience. Another nice side effect of this type of document distribution system is that no humans actually have to make contact. This is not an intentionally anti-social system. However it is often difficult to contact busy people responsible for distributing documents, and computer systems are generally quite happy to perform this function.

Since interaction with the mail server is an off-line process one can not browse around the file system looking for interesting files. This is a desirable security feature, however it also mandates that good `index` or `readme` files exist and give accurate information about file names, types and sizes. If a file is not listed in the index file then the user will have no way of knowing about it. It is the responsibility of the mail server administrator to maintain these files. The mail server administrator may be reached by emailing to: **`nptserver-admin@cme.nist.gov`**

The mail server administrator configures the mail server to have access to particular file directories on the host computer's file system. All of the STEP (Standard for The Exchange of Product Model Data) files accessible via this particular mail server are located in a directory called `step`. In the future the files will be broken up into a more complete directory hierarchy and additional product data standards information may be added to supplemental directories. Files larger than 64K bytes will be broken up into a series of parts each of which will be sent as a separate mail message.

Typical responses from the mail server are on the order of a few hours for e-mail traveling across the country. The e-mail system itself is fairly reliable, and will typically try to connect to the remote systems for three days, if necessary[Quarterman86].

3.0 Commands and their Usage

This section describes valid mail server commands. Commands should be entered one per line and as many as you wish may be entered per mail message. The commands are interpreted in the order they appear in the mail message and some commands affect subsequent commands. In particular, binary file encodings are applied to all subsequent file requests.

Mail Server Command Descriptions

HELP

The mail server will send back a help file containing useful information.

SEND <file> [<file>...]

Specify files to be sent. Use "send index" for a list of files.

MCI

UUENCODE

BTOA

These three commands will enable the three possible encoding formats, and will cause the mail server to encode binary data into ascii text suitable for mailing. Specify the encoding to be used. The default is not to encode at all. The encoding applies to subsequent `send` commands. For example if you use MCI mail and need a binary document called `foo` in the `step` directory area use the following as your mail message:

```
mci
send step/foo
```

The resulting document, mailed back to you, will be encoded with the proper MCI headers and the file will appear as an attachment if you are using MCI mail with the Lotus Express front-end.

LIMIT <number>

Maximum number of bytes to be sent per mail transfer. Default is 64K bytes. The limit applies to subsequent `send` commands.

RESEND <file> <part> [<part>...]

```
resend step/foo 3
```

Resends the indicated <part> from the specified <file>. The encoding and limit must be identical to those used in the original request. The example above will resend the third part of the file foo.

PATH <path>

Specify return e-mail path. Use this if you are not sure that your e-mail system generates correct return addresses.

END

EXIT

These two interchangeable commands terminate command processing. The remainder of the input will be ignored.

Case is *insignificant* in the command verbs, but it ***IS*** *significant* in the <path> and <file> specifications.

4.0 Making the Connection

It is possible to receive both ASCII only and binary files. The mail server is located at an Internet location and MCI is on a proprietary network. The mail server is:

`nptserver@cme.nist.gov`

The subject line is ignored and mail server commands must be placed on separate lines in the body of the mail message.

4.1 Requesting from MCI Mail using Lotus Express

If you use MCI mail from a PC using Lotus Express, you must send mail to the mail server, an Internet address, just as you would send mail to any other Internet address. Use the following steps:

1. Go into `Compose`
2. Press the `F9` key. This will expand addressing.
3. Select `REMS` as the address type. A new set of addressing options will appear.
4. At the `To:` prompt enter anything, e.g. thingamajig
5. At the `EMS:` prompt, enter `internet.`
6. At the first `MBX:` prompt, enter the address: `nptserver@cme.nist.gov`
7. At the next `EMS:` prompt, enter `done.`
8. Press return several times to skip the extra `MBX:` and options lines.
9. Complete the message.

If the file you are requesting is binary, be sure to enter the command `MCI` as the first mail server command. This will cause all subsequent file requests to be encoded with the proper MCI encoding. For more details on sending and receiving mail with or without binary attachments please see [Libes91].

4.2 Requesting from a UNIX mailer

There are a number of front-ends to the UNIX electronic mail programs. Sending mail to the mail server is the same as sending to another user. Simply send the mail just as you normally send mail to other people. In general, you must be careful when asking for binary files to be encoded. By default no encoding takes place. However, if you ask for a binary file and you are on a UNIX workstation you will have to request the mail server to use `UUENCODE` for the encoding method before asking to send the files. For example, to request a binary file called `bfile` your mail message should look like:

```
uuencode
send step/bfile
```

Upon receipt of mail back from the mail server you must be either use the `uudecode` command, or a decode capability in your mailer front-end.

4.3 Requesting from PC-NFS Lifeline Mail

PC-NFS Lifeline Mail is a mail front-end which runs on IBM-PC compatible computers that use the PC-NFS networking software. It is integrated with the mail utilities on the UNIX mail host. Sending mail to the mail server is accomplished using the normal mail commands. Receiving mail is also accomplished in the normal manner and PC-NFS Lifeline has commands which let you decode mail messages encoded using the `uuencode` program, one of the mail server encoding methods. The `decode` command is under the `File` menu and will create a file in the current directory.

5.0 A Few Words about Binary Mail Encodings

In general, using mail to send and receive ASCII text files is not much of a problem. Binary files however, are more complicated. The complications arise because e-mail software, in general, is only capable of sending and receiving ASCII files. Therefore in order to send and receive binary files, the files must be encoded as a set of ASCII characters.The encoding function is accomplished by `uuencode`. `uuencode` encodes a binary file and places a header containing the original file name and permissions at the beginning of the encoded file. To turn the encoded file back into its original binary form you use the `uudecode` program. `uudecode` will use the header information to create a file with the name stored in the header using the permission also stored in the header. File permission is only used by the UNIX versions of `uuencode` and that information is ignored on PC versions of `uuencode`. For example if you saved the mail message containing a uuencoded file as a file called myfile, you could reconstruct it (on a UNIX host) with the following command:

```
uudecode myfile
```

This will result in a new, possibly binary, file being created whose name was stored in the header line of the uuencoded message. The following text is a complete uuencoded file as returned by the mail server. The first and last lines are added by the mail server for each mail message. The line `begin 777 p1-1.txt` is created by the `uuencode` program as is the second to last line which just contains the word `end` on a line by itself.

```
------ begin of p1-1 -- uuencoded -- complete ------
begin 777 p1-1.txt
M)3T]/3T]/3T]/3T]/3T]/3T]/3T]/3T]/3T]/3T]/3T]/3T]/3T]/3T]
M/3T]/3T]/3T]/3T]/3T]/3T]#0HE#0HE(" @4U1%4"!087)T(#$@+2!/=F5R
M=FEE=R!A;F0@1G5N9&%M96YT86P@4')I;F-I<&QE<PT*)0T*)2 @($%30TE)
M;65E=&EN9RX@#0HE( T*)2 @(%5S92!T:&ES(&UA=&5R:6%L('=I=&@@8V%U
M=&EO;B M(&EF(&EN(&1O=6)T(&-O;G1A8W0@=&AE( T*)2 @(%!R;VIE8W0@
M3&5A9&5R(&)R(%!A<G0@161I=&)R+@T*)2 -"B4]/3T]/3T]/3T]/3T]/3T]
M/3T]/3T]/3T]/3T]/3T]/3T]/3T]/3T]/3T]/3T]/3T]/3T]/3T]/3T]/3T]
%/3T-"AH]

end
------ end of p1-1 -- uuencoded -- complete ------
```

One other complication occurs when the requested file is larger than 64K. In this case the mail server splits the file into several parts (this is done because older mailers have 64K file size limits.) Each part is mailed as separately uuencoded mail message. When this happens, you must put all the pieces together and using your favorite text editor (not an editor which saves binary files), must edit out the extra uuencode header and footer lines. The end result must be a single valid uuencoded file which may then be decoded with `uudecode`. A valid uuencoded file contains only one `begin - end` pair. As a general rule it is not recommended to transfer very large files, for example greater then one Mb. as the number of file parts which will be mailed back to you will get unwieldy.

6.0 Types of Documents Available

The mail server can access and therefore send out the latest versions of STEP documents under configuration control at the Testbed. File types can be identified by their extensions which follow the same conventions as those used by the CALS bulletin board [Katz91]. (A) indicates an ASCII file, (B) indicates a binary file. ASCII files do not require any encoding, binary files must be encoded to be successfully mailed. The file type extension conventions are as follows (additions or changes to these conventions will be listed in the `index` file):

.c1x	(B)	ChartX file, a PC drawing application
.com	(B)	An file which will unpack itself when executed on DOS
.exe	(B)	A file which will unpack itself when executed on DOS
.mac	(B)	A file created with any Macintosh application
.ps	(A)	PostScript
.sty	(A)	LaTeX style file, ASCII no encoding necessary
.tex	(A)	LaTeX file, ASCII no encoding necessary
.trz	(B)	Compressed tar file
.txt	(A)	ASCII text file
.w42	(B)	WordPerfect Version 4.2
.w50	(B)	WordPerfect Version 5.0
.w51	(B)	WordPerfect Version 5.1

It is important to obtain the `index` file, an ASCII file, before requesting other files. The index file contains a brief description of the files. For example, those files which are self unpacking executables meant to execute on an IBM PC compatible computer may create any type of file. It is generally a wise idea to know what kind of file one is trying

to obtain so that you can determine if you have the correct document processing software on the correct computing platform.

Submission of new documents follows the procedure outlined in [Katz91]:

> "To add a new item or a new version of an item, the user should provide a machine-readable copy to that organization's Configuration Manager...Each organization's Configuration Manager serves as a single point of contact to the STEP Information Service at NIST. New items will be places on-line only when received from the Configuration Manager or someone authorized by the Configuration Manager."

7.0 Summary

This paper presents the access methods, mail addresses, and command syntax necessary to obtain documents from the National PDES Testbed's Mail Server. Requests to the mail server should be mailed to: **`nptserver@cme.nist.gov`**. Problems with access or with the accuracy of index files should be mailed to: **`nptserver-admin@cme.nist.gov`**. The off-line batch processing provided by the mail server allows for long distance, automated document distribution of up-to-date PDES/STEP documents.

Acknowledgments

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